



RAIL INDUSTRY SAFETY AND STANDARDS BOARD

Safety critical operational information

Code of Practice

Safety critical operational information
Code of Practice
Draft for public comment

This Rail Industry Safety and Standards Board (RISSB) product has been developed using input from rail experts from across the Rail Industry. RISSB wishes to acknowledge the positive contribution of all subject matter experts and development group representatives who participated in the development of this product.

The RISSB Development Group for this Code of Practice consisted of representatives from the general public and the following organisations:

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Transport for NSW

RBTU
Aurizon
PTA WA
Queensland Rail

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Dakar Risk Management
ATHRA

Development of this Code of Practice was undertaken in accordance with RISSB's accredited processes. It was approved by the Development Group, endorsed by the Standing Committee, and approved for publication by the RISSB Board.

I commend this Code of Practice to the Australasian rail industry as it represents industry good practice and has been developed through a rigorous process.

Deb Spring

Chief Executive Officer
Rail Industry Safety and Standards Board

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Contents

Introduction.....	4
1.1 Preface	4
1.2 Purpose	4
1.3 Scope	4
1.4 Out of scope	5
1.5 Safeworking documentation.....	5
1.6 Defined terms and abbreviations.....	5
1.7 References	6
2 Identification of SCOI.....	7
3 Format and style.....	7
3.1 Key principles	7
3.2 Identification of SCOI	7
3.3 Human factors	8
3.4 Data model for SCOI.....	9
4 Collation of SCOI.....	9
4.1 General principles	9
4.2 Provision of information	10
4.3 Templates for provided information.....	10
4.4 Review of draft SCOI	11
5 Dissemination of SCOI	11
5.1 Key principles	11
5.2 Audience.....	11
5.3 Transmission of SCOI.....	11
5.4 Push vs pull	14
5.5 Remembering and recalling SCOI.....	14
5.6 Records of transmission.....	15
5.7 Alteration, cancellation, or withdrawal of SCOI.....	15
6 Assurance	15
6.1 General principles	15
6.2 Assurance responsibilities.....	16
6.3 Confirmation of receipt.....	16
6.4 Confirmation of understanding	16
6.5 Information requiring confirmation.....	17
7 Security of SCOI.....	18
8 Storage of SCOI	18

Appendix Contents

Appendix A Information to be provided	19
Appendix B Good practice in SCOI presentation.....	20
Appendix C Data model for SCOI.....	22

Introduction

1.1 Preface

Safety critical operational information (SCOI) is information that, if not well constructed, delivered, received, understood correctly, and acted on in a timely manner could result in death, serious injury or significant damage to property, infrastructure, or the environment.

This Code specifically addresses operational information that is provided to rail safety workers (RSW), in particular train crew, track workers, protection officers, network control officers and other operational personnel. Other workers such as supervisors, planners, etc may also use this information, however in this context it is information that is primarily required by workers in front facing railway operational roles.

This Code covers documented safety critical operational information (the content and context of the information) and is largely focused on the collection, collation, and dissemination of SCOI. Verbal transmission of SCOI is covered in the RISSB Safety Critical Communication Code of Practice.

Safety critical operational information (SCOI) can include, but is not limited to:

- a) train operation notices and waivers;
- b) track and route condition notices;
- c) temporary speed restriction notices;
- d) weather alerts;
- e) network rule amendments.

1.2 Purpose

This Code of Practice (CoP) provides principles and practices for the definition, development, collection, and dissemination of safety critical information to operational personnel on the Australian railway network, including all heavy and light rail operations.

1.3 Scope

The scope includes the following aspects of SCOI:

- a) Definition of SCOI, assessment and classification.
- b) Standardisation of:
 - i. presentation of SCOI;
 - ii. data.
- c) Collection and collation.
- d) Dissemination, including;
 - i. audience;
 - ii. timeliness;
 - iii. push vs pull;
 - iv. vehicles of transmission (hard copy, digital platforms and applications, etc).
- e) Confirmation of receipt and understanding.
- f) Retention of SCOI.

1.4 Out of scope

This Code does not include requirements, recommendations or guidance relating to:

- a) methods and processes for verbal communications;
- b) safeworking documentation;
- c) maintenance information;
- d) worksite briefings, prework briefings, etc.

Emergency information (information that is acted on immediately via verbal communication) is not addressed in this Code, nor are the principles of verbally transmitting safety critical information. This is covered in RISSB Safety Critical Communication Code of Practice.

1.5 Safeworking documentation

Whilst recognising that safeworking documents, such as track occupancy authorities and train orders, are safety critical documents these are not covered in this Code.

Safeworking documentation is covered in several existing documents, including the Australian Network Rules and Procedures (ANRP) and RISSB Development and maintenance of network rules Code of Practice.

None the less, some of the principles in this Code can be applicable to safeworking documentation. When developing and maintaining safeworking documents this Code should be reviewed in conjunction with the aforementioned documents for relevant guidance that could be applied.

1.6 Defined terms and abbreviations

Generic rail industry terms and definitions are provided in the RISSB Glossary
<https://www.rissb.com.au/products/glossary/>

crucial SCOI

SCOI that, due to the context of that information, requires urgent dissemination and confirmation of receipt and understanding

important SCOI

SCOI that requires understanding and action at a point in the future, confirmation of receipt and understanding may be required

informative SCOI

SCOI that is provided for information only, confirmation is generally not required

issuer

person tasked with disseminating SCOI

pull

has to be manually located and obtained by the receiver and / or user of the SCOI

push

sent by the issuer to the receiver and / or user of the SCOI. This includes SCOI that is electronically sent to the user by email.

receiver

person who obtains or receives the safety critical information. The receiver can also be the user.

user

person who is expected to act on the safety critical information provided

user groups

group of users that are expected to act on safety critical information and have similar roles and responsibilities, or who work, or may work, within the same geographic location

The Macquarie Dictionary definition applies where terms are not defined within the RISSB Glossary or above.

1.7 References

1.7.1 Normative

The following documents are referenced in the body of this Code in such a way that some of the content forms requirements for the Code.

- a) AS 7770 Rail cyber security.
- b) RISSB Safety Critical Communications Code of Practice.

2 Identification of SCOI

Operational information can be described as information that advises of a change that has occurred which is likely to impact the work or task that is expected to be carried out.

Identifying what operational information is safety critical can be assessed using the who, what, why, where, and when analogy. For example:

- a) the audience the information is directed at (who);
- b) the actions that are expected to be undertaken, and how they are to be carried out (what);
- c) the content and context of the information (why);
- d) the location at which the SCOI has to be actioned (where);
- e) the time when the SCOI has to be actioned (when).

Depending on the contents and the requirements of the receiver some SCOI could be more important than other SCOI. For example, notification that track workers will be working in a yard may be less important than notification of a speed restriction due to a broken rail on a mainline.

Depending on the context, content and the consequence of actioning the information SCOI can be classified as either crucial, important, or informative. RTOs should provide information and training to receivers and users of SCOI to assist their understanding of what SCOI is crucial, important, and informative.

3 Format and style

3.1 Key principles

SCOI should be presented so that the information is readily understood, retained, and recalled when the user needs to apply it. This can be achieved by ensuring that SCOI is:

- a) clear – well laid out, easy to read, ensuring there are no convoluted statements;
- b) concise – includes all and only information relevant to the matter at hand;
- c) precise – information must be accurately worded, ensuring no ambiguity or verbosity.

SCOI should be written with the target audience literacy level in mind e.g. pitched at the right reading level. It is recommended that an 8th grade reading level is appropriate. (Flesch Reading Ease Score of 70-80).

3.2 Identification of SCOI

SCOI documents contain safety critical information and supporting explanatory or guidance text. It is important that the safety critical component of the information provided is clearly identifiable to avoid misunderstanding of any provided reasoning or context .

Methods used to identify safety critical information should be consistently applied and follow human factors practice across all SCOI documentation produced by the RTO.

To achieve this safety critical information should be in a visually salient position. This may be achieved through:

- a) use font styles, such as bolding;
- b) highlighting;
- c) headings.

Actions to be taken by the user shall be clearly identified.

Additional visual cues (maps, diagrams, symbology etc) should be used where practical to provide location and context. Evidence shows it can decrease learning time, improve comprehension, enhance retrieval from memory, and improve retention

Use of colour is also an effective means of highlighting SCOI.

It is important that the most appropriate form of SCOI identification considers the mode of dissemination. For example, if colour is used to assist the receiver and / or user understand the SCOI and it is printed, fail safe processes need to be in place to ensure printing occurs in colour and not black and white.

3.3 Human factors

3.3.1 General principles

When collating and disseminating SCOI the following principles apply:

- a) Information shall be as brief and concise as possible.
- b) Background information should be provided where it assists in understanding.
- c) Only information relevant to the receiver / user should be provided.
- d) Diagrams and visual aids should be used wherever possible.

3.3.2 Presentation and format

Well designed and clearly targeted presentation and format enables readers to quickly identify:

- a) whether the document applies to their work;
- b) the safety critical information contained in the document;
- c) actions or responses required.

RTOs shall have a standardized format for distributing SCOI. This should include a SCOI preparation procedure, guideline, style guide, and / or templates to assist the person collating and distributing the SCOI in using the correct structure, format and style. Standardized formats also enable the use of metadata for electronic systems.

SCOI should follow a hierarchy, for example, safety critical information/actions to be undertaken should be up front e.g. required actions should come before background information. If further detailed information is available it is preferable that this is provided in a separate document, rather than including details in the SCOI notice.

Some further methods that should be used to clearly articulate the message include the following:

- a) Communicating one idea or requirement per sentence. Dot points, lists and images are better than long paragraphs.
- b) Using headings to separate elements or classifications.
- c) Avoiding the use of:
 - i. one type and size of font for the whole document;
 - ii. all capitals;
 - iii. vague language e.g. many, lots, roughly;
 - iv. negative statements, including quantifying negatives, e.g. except for...
 - v. unnecessary jargon;
 - vi. exclamation and question marks.
- d) Using active language e.g. 'reduce speed', not 'driver will reduce speed'.

Further detailed information on presentation and formatting is provided in Appendix B.

3.4 Data model for SCOI

Consistency also enables the use of data models, through common styles, formats, and templates. This allows document systems to draw the information down then push it out to those who are identified as being affected stakeholders.

Consistency in data formats also enables stakeholders to search for, or receive, relevant SCOI based on location, track segment, etc.

RTOs should develop templates for SCOI documents that enable the effective use of data, using the headings / fields listed in Appendix C of this Code.

4 Collation of SCOI

4.1 General principles

For SCOI to be constructed and delivered in a timely manner it is important that the following general principles are applied:

- a) Information used to construct SCOI shall be provided to personnel authoring the SCOI document in a timely manner.
- b) The originator of the SCOI should, where practicable, identify and communicate who the intended user groups of the SCOI may be.
- c) Information shall be checked and verified for context and accuracy prior to submission.
- d) The originator of the information (or designated person) shall be available to clarify any information that is unclear or requires further explanation.

4.2 Provision of information

Effective and timely supply of information from the originator to the author is vital to SCOI.

The originator can be any person delegated or authorized to supply information for use in SCOI documentation. The author is the person who receives the raw information from the originator and compiles it into the standard formats used by the RTO.

To assist in the effective transmission of information from the originator to the author of the SCOI the required information should be clearly defined.

As a minimum the following information shall be provided to the SCOI author:

- a) Date that the SCOI takes effect (and end date if applicable).
- b) Contact details for the originator of SCOI (for follow up / clarification).
- c) Safeworking method (if different to normal method of operations).
- d) Intended audience (e.g. roles such as protection officers, network control officers, etc or groups such as organizations).
- e) Track sections to which the SCOI applies.
- f) Any applicable deviations from normal working. This could include:
 - i. operating restrictions such as temporary reduction in speed;
 - ii. waivers or derogations to network rules;
 - iii. additional requirements needed to safely conduct work.

Additional information that should be provided (where applicable) includes:

- a) responsible person for the work;
- b) reasons for the SCOI being issued e.g. to address an identified safety issue or new method of work.
- c) details of amended train working;
- d) map or schematic of the affected area.

Other information that may be provided (where applicable) includes:

- a) detailed safeworking instructions.

4.3 Templates for provided information

Properly developed templates can greatly assist originators to ensure that all relevant information is captured. Templates also assist the use of metadata to populate documents.

RTO's should develop, use, and maintain SCOI templates for use by originators. Templates should clearly articulate what information must be included, and information that is optional.

Templates should be designed so that information can be transferred from the information template into the publishing template with minimal alteration.

4.4 Review of draft SCOI

Draft SCOI documents should be reviewed prior to publication. This review should include the originator of the information to ensure that important details have been accurately included in the document.

In some cases it may be necessary for SCOI to be reviewed by users of the SCOI, managers or other senior personnel. This requirement should be defined within SCOI preparation procedure or guideline.

5 Dissemination of SCOI

5.1 Key principles

The key principles of SCOI dissemination are as follows:

- a) All affected parties shall have access to the SCOI.
- b) Vehicles of transmission shall be:
 - i. accessible – easy to access the information;
 - ii. relevant – information is available and current for the assigned work;
 - iii. usable – information is clear, consistent, and simple to read for all users.
- c) SCOI should be made available in a timely manner to enable suitable and sufficient response so far as is reasonably practicable.
- d) Time sensitive / crucial SCOI shall be directly communicated (pushed) to affected stakeholders.
- e) Affected parties shall be informed when SCOI is changed or withdrawn / cancelled.
- f) All SCOI shall be recorded in a consolidated register (or similar).
- g) SCOI shall have a unique identifier.

Dissemination includes pushing information to stakeholders and providing information for stakeholders to access (pulling).

5.2 Audience

Depending on the content of the SCOI the audience will vary, and may change, depending on the organization, role changes, etc. Therefore it is important that the correct receivers and / or users are identified prior to dissemination. The use of common fields for templates can ease the difficulty of identifying the correct recipient.

It is also important that receivers / users are not routinely supplied with SCOI that is not applicable to their role or task, as this could result in important information being missed or lost amongst irrelevant information. Organization wide distribution should be avoided where possible.

RTO's may use dissemination lists to identify receivers / users for the varying types of SCOI. These lists should be routinely reviewed to ensure the correct personnel are receiving the SCOI, and those that no longer require the information are removed.

5.3 Transmission of SCOI

5.3.1 General

SCOI can be transmitted by various methods. These can be broadly classified as being either verbal, paper based (hard copy), electronic, or visual (such as signage).

Verbal communications are covered in RISSB Safety Critical Communications Code of Practice.

The most suitable method of transmission will depend on several factors, including:

- a) time criticality;
- b) classification of the SCOI (see section 2 of this Code);
- c) geographic location of the recipient and the transmitter of the SCOI;
- d) complexity of the SCOI being transmitted;
- e) availability and suitability of communication networks.

5.3.2 Types of SCOI transmission

SCOI can be transmitted either:

- a) verbally;
- b) using hard copy presented to the user;
- c) electronically; or
- d) visual (e.g. signage).

Verbal communication has many advantages, such as enabling the receiver of the SCOI to immediately question any area they do not understand. It also enables the issuer of the SCOI to immediately confirm receipt and to check for understanding using various questioning techniques. This can be done over radio, telephone, or face to face. Disadvantages include the need for the user to either take notes or commit to memory the information provided, which may result in the SCOI being forgotten or incorrectly recalled.

Hard copy includes information handed to the receiver on paper or received through fax machines. This enables immediate confirmation of receipt and provided the user with a copy of the SCOI that they can refer to at a later time. It also allows a larger amount of information to be provided compared to verbal transmission. However, this form of transmission is not always practical due to rail safety workers not signing on in a depot equipped for receipt of hard copy SCOI, or always having someone available to provide the hard copy when needed.

Electronic transmission through the use of emails and computer based applications is becoming more common. This makes dissemination very easy for the issuer and reduces the amount of paperwork that the user needs to carry. This method, when used correctly, can enable easy recall of information by the user when it is required. Other advantages include the ability for the issuer to easily identify when an SCOI transmission was received. Disadvantages include the need for internet connectivity (not always available in regional areas) and difficulty in confirming that the SCOI has been read and understood.

Visual transmission includes signage and visual warnings. This method can be used to remind rail safety workers of a situation in the area (such as an imminent speed restriction) or a need to act in a certain manner (safety signage). Whilst effective at conveying a message, visual cues are not easily changed if the SCOI to which they apply be altered, cancelled, or withdrawn.

The table below shows the advantages and disadvantages of each method of transmission

Table 5.3.2: Advantages and disadvantage of SCOI transmission methods

Type of transmission	Advantages	Disadvantages
Verbal	Easy to confirm receipt, reading and understanding	Not always practical, limited amount of information able to be transmitted, relies on memory or note taking for recall
Hard copy	Easy to confirm receipt, reading and understanding. Can provide large amounts of information in short timeframe.	Not always practical to provide hard copy in a 24/7 industry with remote locations or enable confirmation of understanding when received.
Electronic	Easy to confirm receipt. SCOI can be disseminated to large groups quickly.	May not be possible to confirm the SCOI has been read and understood. Requires internet connection.
Visual	Once established can provide a constant reminder of an action.	Not easily altered or removed when SCOI changes.

In most cases the best approach is to combine methods to cover the disadvantages in each method. For example providing a hard copy with verbal confirmation can assist a rail safety worker to recall the SCOI provided, or providing visual cues combined with verbal warnings can help reinforce the message.

5.3.3 Crucial SCOI

RTOs shall have systems and processes in place for the receipt and management of crucial SCOI.

Where crucial SCOI needs to be actioned the RTO shall provide a means for the recipient to receive and confirm that the information has been received and understood. This should be achieved using verbal communication (including radio / telephone transmission), electronic communication, or a combination of both. Traditional paper / hard copy based methods or email shall not be the primary means of transmission of crucial SCOI.

The receiver of the SCOI shall confirm receipt and understanding, in accordance with section 6 of this Code.

5.3.4 Frequency of SCOI

SCOI can be provided on a routine basis (e.g. weekly speed restriction notices or weekly notices) or on an as needs basis (e.g. operational notices or weather alerts). The frequency of the SCOI should be determined by the information provided and the context of that information.

RTOs should assess the best method to advise recipients of routine or as needed SCOI. This may be through email or other electronic methods.

5.4 Push vs pull

When disseminating SCOI the information can either be pushed to, or pulled by, the receiver / user. Both systems have advantages and disadvantages as per the below table.

Table 5.4: Advantages and disadvantages to pushing or pulling SCOI

Type of dissemination	Advantages	Disadvantages
Pull	<p>User obtains most up to date version from RTO system.</p> <p>User can select information that specifically applies to their role / task.</p>	<p>SCOI can be missed (not downloaded).</p> <p>Does not confirm the SCOI has been read and understood.</p>
Push	<p>Issuers can widely disseminate SCOI easily.</p> <p>SCOI can be sent to users once it is ready for dissemination.</p>	<p>Users may receive SCOI that is not applicable to their role / task.</p> <p>Does not confirm the SCOI has been received, read and understood.</p> <p>If SCOI is altered the user may not be acting on the most recent version.</p>

Crucial SCOI shall be pushed (e.g. given directly to the receiver) as soon as it is made available. Where this is done electronically the receiver shall also be contacted verbally to ensure the information has been received, read, and understood.

Important or informative SCOI may be either pushed or pulled.

RTOs should have a system that provides assurance that SCOI has been received, regardless of whether it has been pushed or pulled.

5.5 Remembering and recalling SCOI

Depending on the importance of the SCOI it may be necessary for the SCOI to be readily available for the user to refer to and refresh their memory, especially where there is a gap between reading it and needing to apply the understanding to the task.

Some methods that can be used to assist users in recalling SCOI include:

- Pre-start / toolbox meetings;
- Providing printed copies of SCOI;
- Technological means, such as applications with location data that can provide alerts to users as they approach speed restrictions, etc.

RTOs should review their dissemination process to gauge whether the SCOI being presented is assisting recall, or if there is a need to review how the SCOI is provided.

5.6 Records of transmission

When SCOI is transmitted a record of that transmission shall be kept by the RTO. The recorded details should include:

- a) date and time of the transmission;
- b) sender and receiver/s of the transmission;
- c) contents of the message;
- d) date and time the message was received;
- e) confirmation that the message was understood by the receiver/s.

5.7 Alteration, cancellation, or withdrawal of SCOI

When SCOI is altered, cancelled, or withdrawn it is important that the receivers / users are made aware of that change.

RTOs shall have a process to amend or withdraw SCOI. This should include:

- a) removal of the SCOI from all electronic and manual locations;
- b) archiving of the original SCOI (for records);
- c) notification to the users of the SCOI that the information has been altered or withdrawn;
- d) details of any replacement information.

Where existing SCOI is modified the hard and/or electronic copies should clearly identify what has been altered from the previous version.

If an alteration is made to a safety critical action the SCOI should clearly articulate why the change has been made, as this will help the user retain that information.

Changes to SCOI could require alterations to the Safety Management System. RTOs shall follow a defined change management process to ensure these changes are properly recorded and actioned.

6 Assurance

6.1 General principles

It is important that issuer of the SCOI has assurance that the information has been read and understood by the user in a timely fashion.

RTOs shall ensure that processes are established that receivers and users need to meet to provide assurance to the issuing RTO that the SCOI has been read and understood in a timely fashion.

The key principles of SCOI assurance are as follows:

- a) The user of the SCOI shall be given sufficient time to understand the intent of the information and how it applies to their task/s.
- b) Where the user does not fully understand the SCOI, they shall have the option to discuss the SCOI with someone who can assist with understanding.
- c) Receivers of crucial SCOI shall confirm receipt and understanding of the SCOI.

6.2 Assurance responsibilities

There should be an agreement between the issuing RTO and the receiving entity (e.g. RTO or other organization) as to how assurances are managed and recorded. This may be included in interface agreements or other similar documentation. RTOs should also have policies or procedures in place as to how assurance is managed internally.

For example, the receiving RTO may be responsible for providing assurance to the issuing RTO that the information has been received and understood. Internally, individual users may be required to provide assurance to the person who they received the SCOI from.

6.3 Confirmation of receipt

It is important that the users of SCOI receive the information in a timely manner. This should be verified through a system of confirmation of receipt.

At an organizational level RTOs should be able to provide evidence that the SCOI has been received, including the date and time of receipt, and that the SCOI has been received in its entirety. Any queries should be directed to the originator for clarification as soon as practical.

Confirmation of receipt shall be achieved through either:

- a) verbal communication (using safety critical communications protocols);
- b) written means (receiver signs for the SCOI);
- c) electronic means (digital signatures, read receipts, etc);
- d) a combination of any of the above.

Where electronic communication and its integrity is unreliable, or confirmation cannot be clearly received all parties shall revert to verbal and written communications.

RTOs shall have procedures that address confirmation of receipt. The following actions are recommended:

- a) If action is required within 24 hours the user shall confirm receipt verbally. Confirmation should include readback.
- b) If action is required between 24 – 48 hours the user should confirm receipt verbally or electronically.
- c) If action is required beyond 48 hours the user should confirm through written or electronic means.

6.4 Confirmation of understanding

To gain assurance of understanding an RTO needs to ensure the safety elements in the SCOI are understood by the user, the relevance of the SCOI to their role, as well as the context behind the safety elements (location, time in place, etc).

An RTO can gain assurance of understanding by various methods. It is important to note that no single method achieves complete assurance, and that a combination of methods will provide better outcomes.

It is the responsibility of the user's employer (RTO) to assure themselves that the SCOI has been received and understood. The RTO should also be able to provide evidence of understanding back to the originator, commensurate to the importance of the SCOI.

For example, a simple verbal acknowledgement may be sufficient for SCOI that is informative. However, where the SCOI is important or crucial a greater method of gaining assurance shall be used. This may include such methods as:

- a verbal question and answer session between the user and another appropriate person (e.g. supervisor, shift manager, etc);
- asking the user to summarize the SCOI, ensuring that the key points are referred to;
- the user demonstration of the expected actions to be taken (e.g. draw a diagram or plan of the area referred to in the SCOI);
- read back of the SCOI to an appropriate person (e.g. supervisor, network control officer, shift manager, etc).

Where practical to do so RTOs should retain evidence of how the user of the SCOI showed understanding. This can be achieved through recordings or written records of discussions.

6.5 Information requiring confirmation

Whilst all crucial information requires confirmation of receipt and understanding (refer section 2), important information could require confirmation, depending on the content and context of that information.

RTOs should clearly define what SCOI requires confirmation and the methods to be used to receive and record that confirmation. Table 6.2 below provides guidance regarding some typical SCOI and whether confirmation is required

Table 6.2: Information requiring confirmation

Type	Detail	Confirmation of receipt	Confirmation of understanding
Train Operations Notice	Timetable alteration	N	N
	Track closure (yard)	N	N
	Track closure (mainline)	Y	Y
Track and route condition notice	Changes to track configuration (yard)	N	N
	Changes to track configuration (mainline)	Y	N
Temporary speed restriction notice	TSR with warning / caution boards erected	N	N
	TSR without warning / caution boards erected	Y	Y
Weather alerts	Serve weather warnings (Bureau of Meteorology)	Y	Y
Network rule amendment	Change to Network Rule	Y	Y

7 Security of SCOI

It is important that security of SCOI is considered by the RTO. The following key principles apply to SCOI security:

- a) Only authorized personnel shall have access to systems used to disseminate SCOI.
- b) Users and receivers of SCOI should not be able to alter the information once issued.

Further information on cyber security is available in AS 7770.

8 Records management

SCOI, regardless of the format, should be retained for an appropriate amount of time.

Records, including retention periods, shall be managed in accordance with the requirements for document and data control under the RTO's accredited SMS.

Appendix A Information to be provided

To assist with standardisation and the use of metadata the following headings or fields should be used on SCOI documents or templates:

- a) Title.
- b) Originator's details:
 - i. name;
 - ii. position / title;
 - iii. time;
 - iv. date.
- c) Author's details:
 - i. authorised by;
 - ii. position;
 - iii. time;
 - iv. date.
- d) Stakeholders affected by SCOI.
- e) Published / transmitted details:
 - i. time;
 - ii. date.
- f) Location:
 - i. name;
 - ii. direction (where applicable);
 - iii. km start;
 - iv. km end.
- g) Start date.
- h) Start time.
- i) End date or expected end date.
- j) End time or expected end time.
- k) Infrastructure effected.
- l) Instructions (as per section 4.2).
- m) Audience for the SCOI.
- n) Map or schematic of affected area (using term in body of SCOI 'Refer to Figure ##').

Appendix B Good practice in SCOI presentation

Below is a list of recommendation regarding information design from The Journal of Literacy¹ which can be used to improve the quality of SCOI presentation:

- a) Legibility of text in print media:
 - i. Use clear, direct, simple and transparent typography.
 - ii. Use a common typeface, between nine and twelve Pica points, for continuous text in a book, a pamphlet, or a report.
 - iii. Restrict the number of typefaces; only use a few in an information material.
 - iv. Standardize use of font size. Suggest:
 1. one size for header text (use headings to help differentiate between different types of information or different contexts);
 2. smaller size for information text.
 - v. Text to be lower case with capitals for first letter of sentence with single space applied between individual words
- b) Legibility of text on wall charts:
 - i. Set text bold and large enough, adjusted to the reading distance.
 - ii. Use lower case letters and avoid all-capital printing for running text.
 - iii. Restrict the number of typefaces.
- c) Legibility of text on screens:
 - i. Use typefaces designed for screen display.
 - ii. Use a black text on a white or yellow background.
 - iii. Avoid the use of all capital letters.
- d) Legibility of projected texts:
 - i. Use no more than six rows of six words in each image, set in a linear typeface, with characters large and bold enough.
 - ii. Maintain a good contrast between foreground and background.
 - iii. Avoid graduated and tonal background fills.
- e) Legibility of pictures:
 - i. Use picture elements that are bold and large enough.
 - ii. Use a style guide for picture elements in schematic pictures.
 - iii. Set words in images and pictures bold and large enough to read.
- f) Legibility of colour:
 - i. Use a light or a dark background colour appropriate to the content, and then use a colour with good contrast for the figure or text.
 - ii. Make sure that differences between colours are clear and obvious.
 - iii. Combine colours with shape in warning signs.

¹ 'Information design – principles and guidelines', *Journal of Visual Literacy*, Volume 29, Number 2173

g) Legibility of layout:

- i. Use standard page sizes with standard grids for pre-planning of pages.
- ii. Use headers that clearly identify that the document contains safety critical information.
- iii. Use a clear and simple layout.
- iv. Use arrows, bullets, lines, and symbols in various colours; and margin notes, repetition, and space to highlight relevant information.

Safety critical operational information
Code of Practice
Draft for public comment

Appendix C Data model for SCOI

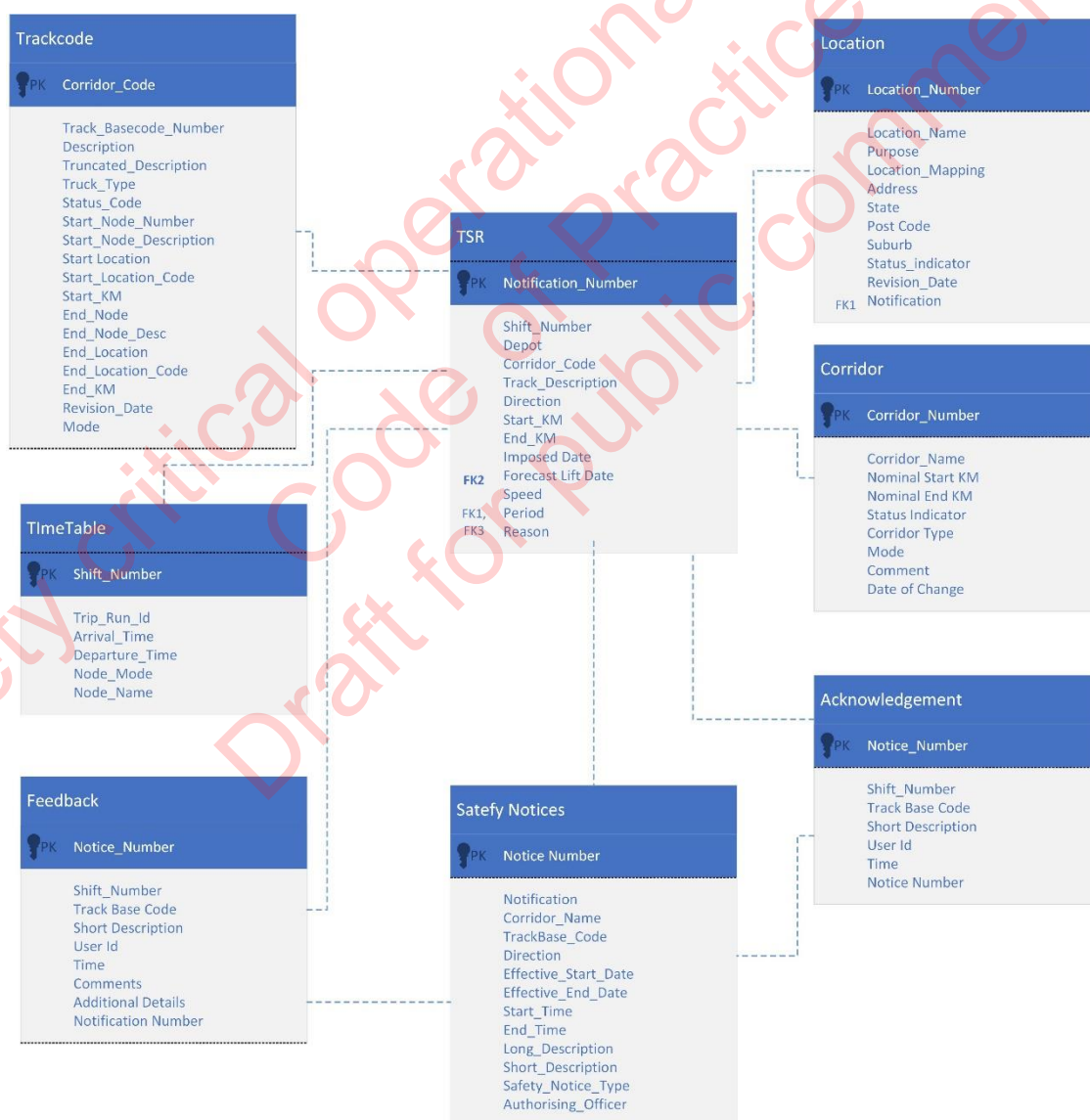
Harmonization has significant benefits to the rail industry, both in cost savings (time and financial) and safety (consistent approaches across all networks). The use of a common data model for SCOI enables the free flow of information between RTOs and reduces the need for additional customisations, complex data transformations, and manual intervention. Furthermore, safety is improved through use of common terms, formats, and styles, which reduces the risk of information being misinterpreted.

This Code does not seek to explain data models and how they work as this information is widely available elsewhere.

The following logical data tables below are based on the analysis work conducted by Transport for NSW as part of their Digital Safety Critical Information project.

RTOs developing a logical data model should, where possible, use the entities and attributes from this model.

Figure C:1 Logical data model



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